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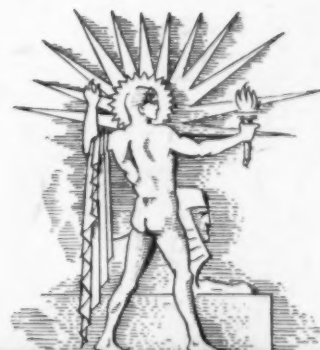
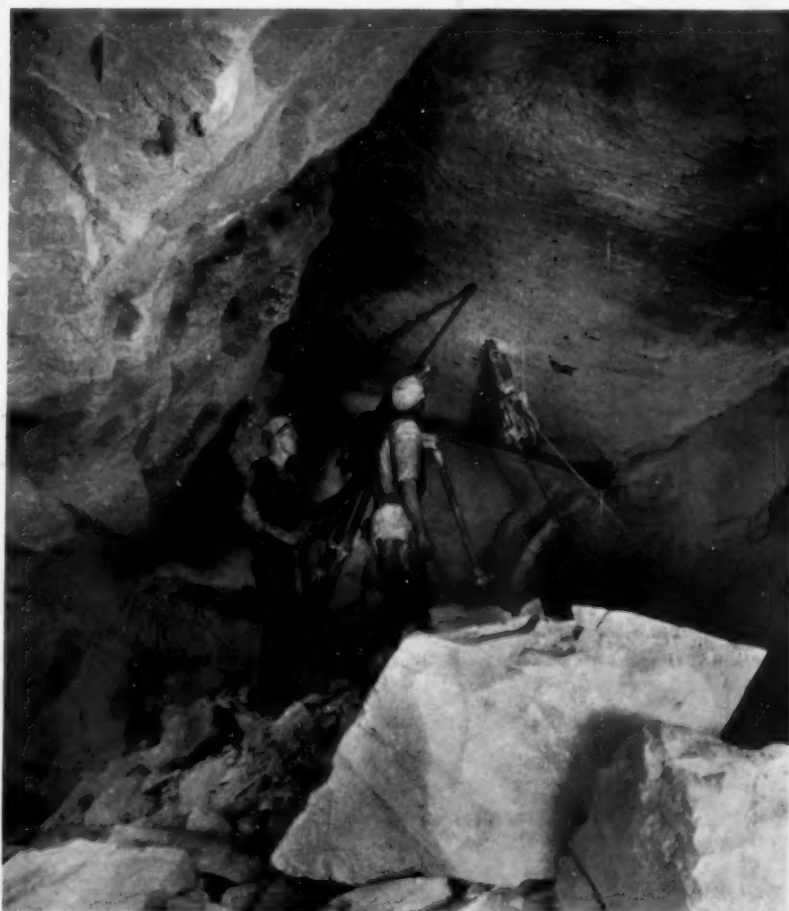
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APR 9 - 1938

SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE •



April 9, 1938

Stone for Steel

See Page 234

A SCIENCE SERVICE PUBLICATION

Do You Know?

South America has two countries with no seacoasts; Europe has four.

A rubber pavement in England was made with discarded automobile tires.

Sheepskin, sometimes used in "kid" shoes, is more likely to stretch and scuff than goat leather.

Although Iquitos, Peru, is over 2,000 miles up the Amazon River, it is visited regularly by ocean-going vessels.

Thirty years ago coal supplied 89 per cent. of the United States' fuel energy; now it supplies only 50 per cent.

The thunder god Thor of Scandinavian mythology may have come from ancient Iran, says an archaeologist.

A live porpoise weighing about 100 pounds was recently captured near St. Augustine, Florida, and is being kept in a tank.

Over 220 varieties of American grapes have been studied and given ratings at the government's experiment farm at Arlington, Va.

Despite droughts, floods, and disease, the United States is rated as probably the safest country in the world in which to raise livestock.

Head hunting has persisted among some African tribes because of the custom of a young man's taking a head to show his intended bride his courage.

QUESTIONS DISCUSSED IN THIS ISSUE

Most articles which appear in SCIENCE NEWS LETTER are based on communications to Science Service, or on papers before meetings. Where published sources are used they are referred to in the article.

ARCHAEOLOGY

Who practised "thermos bottle" burial? p. 236.

ASTRONOMY

Where can the stars of the first Easter be seen now? p. 232.

What is record height for a solar prominence? p. 233.

AVIATION

Who owns the most versatile airplane? p. 233.

CLIMATOLOGY

When were sunspots most numerous? p. 236.

ECOLOGY

What animals are most destructive to soil? p. 238.

ENTOMOLOGY—MEDICINE

What drives out the tsetse fly? p. 232.

ETHNOLOGY

Why do Liberians dislike Europeans? p. 234.

GENERAL SCIENCE

What are the Nieman Fellowships? p. 232.

GEOGRAPHY

What was the House at the North Pole made of? p. 228.

Why are colonies unprofitable? p. 233.

MEDICINE

How do brain lesions affect brain waves? p. 228.

What are the purposes of the two new "cured patients" societies? p. 235.

MEDICINE—PHYSIOLOGY

Where would radioactive iodine concentrate? p. 229.

ORNITHOLOGY

Why is Switzerland important to scientists studying birds? p. 238.

PALEONTOLOGY

When did the last ground sloth die? p. 233.

PLANT PATHOLOGY

Can there be "carriers" of elm disease? p. 232.

PSYCHOLOGY

Would you vote ja or nein in the Anschluss plebiscite? p. 227.

Who finds it easiest to get a job? p. 230.

PUBLIC HEALTH

How many college students are unvaccinated? p. 233.

Peruvian chemists are to hold their first chemical congress this summer.

Indians boiled down maple syrup in bark vessels, into which they dropped hot stones.

One metallurgist is said to have made his own safety razor blade, nitriding the steel, and to have used it without re-sharpening for two years.

Coyotes are better mousers than cats.

Engineers find hot oil when they drill deeply—in one section, petroleum as hot as boiling water was found about a mile down.

Only one Roman gateway in Britain has remained in continuous use for traffic down to the present—the Newport Arch at Lincoln.

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PSYCHOLOGY

Austro-German Plebiscite "Loaded" Against Dissenters

**Voting "Nein" Will Be Considered Risky by Many Citizens;
No Way of Separating Consent and Reichstag List Possible**

By Dr. GEORGE GALLUP

Director, American Institute of Public Opinion

CHANCELLOR Hitler's Austro-German plebiscite on April 10 will have two purposes—to convince foreign opinion of the solidarity of the Nazi regime and to convince the Austro-Germans themselves.

What success Hitler will have in convincing his countrymen, nobody can tell.

European observers agree that the plebiscite will result in a tremendous vote for Hitler, upholding the union of Austria and Germany and "electing" the Führer's list of candidates to the new Reichstag.

To assure this, the German propaganda machine is working day and night, keying German citizens to a fever of patriotic enthusiasm. Just as he did before the plebiscite of 1933, when he asked Germany to approve his withdrawal from the League of Nations, Hitler is campaigning personally in every corner of the Reich.

In 1933 these methods gave Hitler more than 40,000,000 "ja's," or about 93 per cent. of the total vote.

Did all these votes represent the

voters' convictions? Foreign observers still disagree as to whether they did. Will the plebiscite on April 10 represent the true opinions of the Austrians? It is likely that the observers will disagree on this point, too, for a long time to come.

Undoubtedly there was strong sentiment in Austria for "Anschluss" after the war. A manifesto affirming the desire for union with Germany at one time secured the signatures of a majority of members of the Austrian parliament. The world war Allies brought strong pressure against the move, but not before plebiscites overwhelmingly favoring "Anschluss" were held in two Austrian provinces.

Chancellor Hitler referred to these plebiscites in his speech to the Reichstag following his Austrian triumph.

But American observers recall that the Austrian drive for "Anschluss" took place when Germany was ruled by the mild government of the post-war Social Democratic party.

Americans are skeptical, too, when they remember that it was Austrian Chancellor Kurt Schuschnigg's proposal to hold a plebiscite on March 13 that

brought German troops rolling over the border and brought an end to independent Austria.

On March 9 Chancellor Schuschnigg was wildly hailed in Vienna after his speech announcing the plebiscite. Only five days later, on March 14, Vienna stood up and cheered Chancellor Hitler and Schuschnigg was under "protective custody."

Which demonstration represented the Austrian majority? Americans are not likely to accept the answer of the April 10 plebiscite as unconditional.

The manner in which the plebiscite will be conducted will not help to resolve the uncertainty.

Germans will be handed a simple ballot with the double question:

"Do you approve of the unification of Austria and Germany as accomplished on March 13, and do you vote for the list of our Führer Adolf Hitler?"

There follows a large circle with the word "ja" and a smaller circle with the word "nein."

In one question the German citizen is asked to approve the fait accompli in

BABOONS, JUST BABOONS

Seven species of baboon, representing all the principal lines of these interesting ground-dwelling apes, are shown in a new museum group which has just been opened to public view at the Field Museum of Natural History. The group includes one animal, the Celebes tailed ape, that is not strictly speaking a baboon, but represents a connecting link between the baboons and the Old-World tailed monkeys. True baboons are all natives of Africa. From left to right: young Guinea baboon, Celebes black ape, drill, mandrill, Gelada baboon, yellow baboon, and (behind the last) dog-faced baboon.



Austria and to vote for the Führer's list of candidates for the Reichstag. There is no means of separating his opinions on these two issues without voiding his ballot.

Moreover, since there is no other legitimate political party in Germany or Austria today except the Nazi party, the voter has no effective opportunity to dissent. His "nein" is a vote for nothing, and, in the voter's mind, may be accompanied with a certain risk.

In these circumstances the psychological line between coercion and persuasion becomes extremely thin.

The forthcoming plebiscite will again raise the question of what happened to the 18,000,000 persons who voted against Hitler in the last orthodox German election, in March, 1933.

At that time the Hitler-Hugenberg bloc polled a bare majority of a total vote of 39,000,000. The remainder went to candidates of the Communist, Socialist, Centrist and Democratic parties.

Eight months later, when Hitler conducted his plebiscite on the League of Nations, this large dissenting vote had all but melted away. It amounted to only 6.6 per cent. of the total vote.

Since all Germans go to the polls, as well as Austrians, on April 10, observers will be watching for further signs of opposition. A vote of 5,000,000 or more against Hitler might indicate that an opposition is gathering its voice.

Science News Letter, April 9, 1938

MEDICINE

Brain's Electrical Waves Aid in Diagnosing Tumors

THE BRAIN'S electrical waves are being used to diagnose the presence of cerebral lesions such as tumors and scars by Dr. Theodore J. Case, University of Chicago neurophysiologist. Eleven cases have shown that a diagnostic procedure has been perfected that uses brain waves just as the electrocardiograph is used in diagnosing heart disease. Dr. Case emphasized, in reporting to the Chicago Neurological Society, that the brain wave method could not yet be used as the sole guide for the physician in his diagnosis and had to be used in conjunction with other means such as X-rays or drilling a hole into the skull.

Dr. Case said his technique had important advantages of not causing the patient any pain or discomfort and of detecting lesions in the so-called silent areas of the brain. These lesions can not be detected by neurological symptoms as are those in the motor areas.

Research workers have known for some time that the brain's nerve cells pulsed electrically at a regular cadence all the time and they perfected methods for amplifying these pulsations and recording them. Normal brains show fre-

quencies between eight and forty waves per second, the most common being the ten per second alpha wave.

In the cases reported by Dr. Case and verified either by operation or autopsy it was found that lesions are denoted by localized regular waves with a frequency of one to three per second, by very slow waves varying from one in five to one in two seconds, and by irregular spike or sawtooth waves. The most common indication of a lesion was the localized regular wave with a frequency of one to three per second. The abnormal waves were localized with respect to the lesion which could be closely defined by shifting the electrodes until the characteristic waves were strongest. The research was supported by a grant from the Otho S. A. Sprague Memorial Institute.

Science News Letter, April 9, 1938

GEOGRAPHY

Replica of Polar Camp Exhibited in Moscow

AN EXACT replica of the ice floe camp in which Dr. Ivan D. Papanin and three companions lived while drifting from the North Pole to a point off the Greenland coast during the nine-month Polar expedition recently ended is on exhibition in the Gorky Park of Culture and Rest, in Moscow, it is learned from Tass.

The exhibition, located on an enormous ice field, shows the winterers' tent and its entire equipment. The light duralumin pipe framework of the tent is covered by two layers of heavy tarpaulin between which a padding made of silk eiderdown blankets is placed. The floor is covered with inflated rubber cushions; cots hang one above another from the light metal pipes.

Through the open door fur clothing, kitchen utensils, a table with the instruments used by the hydrobiologist Shirshov and other equipment can be seen. The inscription, "USSR Drifting Expedition of the Chief Administration of the Northern Sea Route," is on the roof.

Near the tent is the winch used for lifting samples of ocean bottom, and the radio mast.

Science News Letter, April 9, 1938



VOYAGERS OF THE FLOE

First picture to reach this country of the four Russians of the Polar party, after the strangest voyage in history—a long drift on an ice floe from the North Pole to the east coast of Greenland.

MEDICINE—PHYSIOLOGY

New Morphine Substitutes May Aid Addiction Control

Biologists Meeting in Baltimore Discuss Cancer Treatments, Birth Control, Insulin Against Alcohol, Remedy for Burns

TWO NEW possible substitutes for morphine which may prove able to free man from the poppy's curse, drug addiction, were announced by Dr. Nathan B. Eddy of the University of Michigan at the recent Baltimore meeting of the Federation of American Societies for Experimental Biology.

The new substances are: 1. methylhydromorphinone, a substance derived from morphine; and 2. a synthetic chemical made from carbazole, a coal tar product.

The promising substance derived from morphine, methylhydromorphinone, has been given to relieve pain in place of morphine, to between 800 and 900 patients at hospitals of the Massachusetts State Department of Health, hospitals of the U. S. Public Health Service and at clinics in Ann Arbor. Because the conditions from which these patients suffer vary so greatly, it is difficult to arrive at an exact knowledge of the new drug's value.

Encouraging from the standpoint of the fight on drug addiction is the report that it is not necessary to increase the dose of this new drug. The same amount continues to relieve pain after many doses have been given as was effective in the first dose.

Still Somewhat Toxic

The synthetic drug derived from carbazole controls pain as well as codeine does, but it is rather toxic. The chemists think they can remove the part of the synthetic drug that produces these toxic or poison symptoms without reducing its pain relieving property. This drug has not yet been tried on man, so no one knows yet whether or not it is habit-forming.

The work Dr. Eddy described is part of a nine-year fight against drug addiction waged by armies of chemists, pharmacologists and other scientists under the auspices of the National Research Council. Their aim has been to find the perfect non-habit-forming substitute for morphine. A summary of the

accomplishments and efforts of these years will shortly be published by the U. S. Public Health Service, which is one of the organizations taking part in the work. The method of this research has been to study the chemical constituents of morphine, to learn if possible which ones could relieve pain, which ones were poisonous and which ones were habit-forming, and then to remove the undesirable ones from morphine or change them so as to make them inactive, or else to make a completely new drug out of the desirable chemical constituents.

Cyclotron Against Cancer

Artificial radioactivity may replace the surgeon's knife and other methods of treating cancers of the thyroid gland and simple goiters due to overgrowth of the tissue of that gland in the neck. This future application of one of latest triumphs of modern physics appears in research reported by Drs. Saul Hertz and Arthur Roberts of Harvard Medical School.

Application of artificial radioactivity to the conquest of cancer is one of the aims of the atom-smashing experiments being conducted by physicists on a wide front. One of the difficulties with the use of radium and X-rays is that of getting the cancer-destroying rays into the cancerous tissue without harming other healthy tissues. Radium needles, million-volt X-ray machines and elaborate ray-screening methods have been developed in the hope of overcoming this difficulty. Since some chemicals have the knack of making their way to certain parts or tissues of the body and depositing there, the physicists hope that by giving these radioactivity, they may have a way of getting the cancer-destroying rays right into the tissues where they are needed. The research of the Harvard medical scientists is one of the first forecasts that the physicists' aim will be accomplished.

Iodine is one of the substances that can be made radioactive by the cyclotron,

giant atom-smashing apparatus. When this radioactive iodine is injected into a vein, almost all of it makes its way into the thyroid gland. This was discovered by injections of radioactive iodine into the veins of rabbits and presumably would be true in the case of humans as well.

Radioactive iodine in the thyroid gland should act like radium needles or seeds, giving off beta rays that can destroy cancer and check overgrowth of other cells. When greater supplies of radioactive iodine can be made, it should be possible to use this potent material in treating human patients.

Birth Control Improvement

A discovery which brings birth control by the "safe period" or rhythm method an important step nearer to being universally practicable appears in research reported by Drs. Fred D'Amour, Dorothy Funk and Helen Liverman of the University of Denver.

The research also promises a means of overcoming sterility in some cases and thus enabling many women to fulfill their dream of motherhood.

The "safe period" or period of infertility could be determined for each individual woman by a test described by the Denver scientists. This means that the chief drawback to successful birth control by this method can be overcome.

The test, originally devised by Dr. R. G. Gustavson of the University of Denver, is now being used for research in a number of hospitals throughout the country. It depends on the fact that at the time when the egg bursts from its follicle the amount of one of the female sex hormones excreted from the woman's body is at its highest for the month. This is the time when fertilization can take place.

Aid Toward Motherhood

The fact that there was such a period has long been known but heretofore there has been no way of determining this period exactly. As a result there have been many failures in attempts at birth control by the calendar method. The "safe period" fell in the same part of the monthly cycle for three-fourths of the women tested by the Denver scientists. The other one-fourth had different rhythms.

In the case of women who have been unable to have children, this test would show whether the sterility was due to failure of the pituitary gland to produce enough of the pi- (Turn to Page 237)

PSYCHOLOGY

Parts of Brain Removed, Intelligence Not Affected

Psychologists Discuss Employment Placement, Taste in Art,
At Meeting of Eastern Branch in New York City

LARGE portions of the important frontal lobes of the brain can be removed surgically without apparent damage to the intelligence, it was reported to the Eastern Branch of the American Psychological Association in New York by Dr. D. O. Hebb, of the Montreal Neurological Institute and McGill University.

Four cases were discussed by Dr. Hebb, but the identity of the individuals was guarded with medical scrupulousness. All four have been given careful psychological examination after the serious brain operation, and in one case it was possible to compare the scores with results of an examination made before the surgery. In each case the surgery was necessary because of disease conditions.

Still Classed as "Gifted"

One man, after removal of the left frontal lobe of the brain, received a perfect score on a mental test for superior adults. This gave him an IQ of 152, putting him in the "gifted" class. The patient's success in his calling and in life fit in with the results of the mental test, Dr. Hebb reported.

This man, as well as the three other cases reported, was right-handed, and therefore the left side of the brain was the dominant side. It has been previously supposed by many physicians that loss of a large part of the dominant side of this thinking area of the brain would mean loss of mental ability.

In another case, removal of between $4\frac{1}{2}$ and 7 per cent. of the whole cerebrum left the patient still above average in intelligence.

In a third case it was necessary to remove surgically more than 4 per cent. of the cerebrum and the disease condition had destroyed an even larger part of the brain. Yet this man's IQ was only one point lower after this serious loss than before the operation.

In the fourth case, after removal of the left frontal lobe, the patient appeared to relatives as of somewhat better intelligence than before. The only ascertain-

able defect in this man is a possible loss of initiative in business and society.

No signs of apathy, depression, dementia, or loss of abstract behavior were discovered in these patients, Dr. Hebb said. He credited Drs. Wilder Penfield and William V. Cone, of the Montreal Neurological Institute and Dr. W. B. Mitchell of the Mental Hygiene Institute for cooperation in this pioneer research.

Radicals Like Modern Art

Modern composers and modern painting are liked by persons who think well of themselves, Dr. A. H. Maslow, of Brooklyn College, told the meeting.

Such persons, with self-confidence and self-esteem, differ from those with more self-consciousness, shyness, and feeling of inferiority, in many other ways, he said.

The high-ego persons are rebels and radicals, Dr. Maslow discovered from a personality survey. They have no religious feeling. They are likely to lack sex morality and romantic love.

The more diffident, low-ego individuals, are more likely to be religious, conventional, conservative, polite, good humored, and romantic rather than sexual.

The high-ego person can make friends easily and is socially well poised, but some prefer their own company.

The low-ego person appears to lack sense of humor, but that is only because their humor is whimsical and fantastic and delicate rather than lusty.

The high-ego person has a free personality.

The low-ego person is strongly socialized and tends to be strongly inhibited and tense.

Relatives Are Helpful

Young people gettings jobs usually find them through friends or relatives, not by going out job hunting, declared Dr. Hazel P. Gaudet, of the Research Center of the University of Newark.

Through cooperation of the National Youth Administration, all young people leaving work-relief projects in one county in New Jersey for regular employment were compared with a matched

group of those who failed to get jobs, in order to find out what it takes to gain employment in the modern business or industrial world.

Friends are most important, it was discovered. Of all those who had ever had a job, 70 per cent. had learned of their last job through friends or relatives, about 15 per cent. through canvassing, and only 10 per cent. through advertisement and employment agencies.

The number of friends is not so important as their influence, or their knowledge of jobs and ability to recommend the job hunter, the study showed. A friend working in the firm where the job exists seems to be ideal. But, actually, the unemployed were more sociable, got out more with others and belonged to more organizations than those who got jobs. They were too sociable for their own good, the psychologist concluded.

Personality tests of those who found jobs and those who failed showed that the former are more self-reliant, more stable, and less self-centered despite the fact that they are less sociable than are those still on work-relief.

Lunch Raises Estimates

Artistic taste is affected by the gustatory type, it is revealed by experiments reported to the meeting by Dr. G. H. S. Razran, of Columbia University, who asked some 250 college students and unemployed workers to judge the beauty of musical selections from classical to primitive and jazz, paintings from early Italian to surrealism, and photographs of pretty American college girls.

Later the same persons made judgments, while eating a free lunch, concerning those items that they had previously not liked. The ones they had preferred were given them for judging either just before or just after the lunch.

Even one lunch was enough to cause a net shift of 25 to 35 per cent. in the direction of the items judged during the meal. Some subjects were given from 4 to 10 lunches. The gross shifting was even higher, for a few persons seemed to be negatively affected by the menu.

Boredom from monotonous work, as well as sleepiness, is relieved by the "pep drug," benzedrine sulphate, Dr. J. E. Barmack, of the College of the City of New York, and Dr. A. T. Poffenberger, of Columbia University reported. Boredom lowers the blood pressure more than does rest, these investigators have found. A dose of benzedrine sulphate raises it.

Science News Letter, April 9, 1938

BACTERIOLOGY

Sterilizing Rays Keep Germs Away From Wounds and Food

First Used in Hospital Operating Rooms, Germ-Killing Lamps Now Shine in Meat Markets, Restaurants, Etc.

DEATH RAYS that prevent your food from spoiling, your wounds from getting infected, and your lips from being soiled with other people's germs traveling on glasses and tableware, were recently demonstrated to the American Institute in New York.

Development of the microbe death ray may also add a new word to American vocabularies—"rentschlerization." It is derived from the name of the man who developed the ray, Dr. Harvey C. Rentschler, director of research in the lamp division of the Westinghouse Electric and Manufacturing Company. "Rentschlerization" will rank with "pasteurization," it is claimed.

"Rentschlerization" is the process of killing disease germs by exposing them to the microbe death ray, which is one single ultraviolet ray with a wave length of 2537 Angstrom units. The ray is harmless to humans. Associated with Dr. Rentschler in developing the microbe

death ray was Dr. Robert F. James, Westinghouse biophysicist.

The microbe death ray, released from slender tubes called Sterilamps, made its surgical debut in the operating room of Duke University Hospital under the direction of Dr. Deryl Hart, surgeon-in-chief.

Infections after surgical operations do sometimes occur even with the most careful, germ-free surgical technic, because before the development of the new microbe death ray it was impossible to keep the air of an operating room germ-free.

Since installation of the microbe death ray tubes, post-operative infections have practically disappeared from his operating room, Dr. Hart reported. Furthermore, patients had much lower temperature curves following operations in which these tubes were used to keep germs out of the air over the operating table. As a result of Dr. Hart's

successful experiments, which were in progress for nearly two years, Sterilamps have been installed at the Mayo Clinic, the New York Medical Center, the Perth Amboy, N. J., Hospital, and elsewhere.

The search for the microbe death ray started from the angle of food preservation. Cooking is one form of sterilizing food, and certain chemicals will preserve foods. So do refrigeration and pasteurization. None of these methods is universally practicable. Neither chemicals nor heat, for example, can be satisfactorily applied to the preservation of such perishable foods as meat, and often, even in very cold refrigerators, meat is attacked by molds. Now the butcher can install Sterilamps in his refrigerator and even in his display cases and keep his meat protected both from germs and from loss of water and flavor due to the low temperatures previously needed to preserve the meat.

Keeping glasses and tableware germ-free in restaurants is not only a question of washing them clean and sterilizing them but of protecting them from germs in the air that can reach clean dishes stacked on shelves. Sterilamps seem to be the ideal solution to this important sanitary problem, since they are inexpensive and can be easily installed.

Science News Letter, April 9, 1938

PLANT PHYSIOLOGY

Part of Vitamin B₂ Heightens Life in Leaves

MORE vigorous life in leaves results from the presence of nicotinic acid, which has been demonstrated as one part of the organic complex known as Vitamin B₂, it is indicated by experiments in the Osborn Botanical Laboratory of Yale University. The research results are reported by Ray F. Dawson. (*Science*, March 18)

Mr. Dawson placed the cut ends of tobacco leaves in solutions containing nicotinic acid, and other leaves in plain water as controls. The leaves receiving nicotinic acid lived longer before wilting, took up more water, formed more nicotine, and increased more in weight than did the controls.

Science News Letter, April 9, 1938



FOR SAFER GLASSWARE

Waitresses no less than surgeons help in making life safer and cleaner, as they flood with microbial death-rays the glassware used by patrons, ridding it of the invisible load of germs that often survive ordinary dishwashing.

A mystery concerning hides that arrived from a Latin American country in poor condition was solved when a bacteriologist found that insects hatched in the hides during shipment.

ASTRONOMY

Planetarium Shows How Easter Feast Originated

ASTRONOMY, optical science and music join in the showing of the origins of Easter at the Fels Planetarium of The Franklin Institute. The astronomy division of the Institute is using the planetarium to turn back time to 30 A. D., to the original Crucifixion and to the Resurrection which marked the first Easter. How the date of Easter moves in accordance with lunar time, and the discrepancies between lunar and solar time, are explained.

Classical religious music and readings from the poems of John Masefield, appropriate to the occasion, comprise the second part of the program which is entitled "Easter—The Awakening." The special program will be continued throughout April.

Science News Letter, April 9, 1938

ENTOMOLOGY—MEDICINE

American Mosquito Spray Effective Against Tsetse Fly

CHEMICAL combat means invented in America promise to give victory to white men in Africa on one of the most desperately contended fronts in all mankind's widespread war against insects—the tsetse fly campaign.

These insects, bearers of the deadly African sleeping sickness to human beings and scourges to livestock as well, flee, as they would from hellfire, from a spray originally developed for the control of New Jersey mosquitoes. The spray is the invention of Dr. J. M. Ginsburg, biochemist of the New Jersey Agricultural Station, Rutgers University. It consists of substances extracted from pyrethrum, dissolved in light petroleum oil.

Discovery of the high value of the New Jersey larvicide as a tsetse repellent was made by an American expedition in Africa, the Morse Museum African-Asiatic Expedition. British authorities in Tanganyika Territory, which is especially afflicted with tsetse flies, have shown a keen interest in the New Jersey compound, and a small quantity has been sent to them by Dr. Ginsburg, for testing purposes.

Mrs. Julie B. Morse, in charge of research for the Morse Museum expedition, writes enthusiastically of the success of Dr. Ginsburg's mixture, as contrasted with the poor results obtained with earlier repellents. She states:

"We have decided that the New Jersey

mosquito larvicide would be a boon to Africa in many ways: to spray cattle that have to be driven through the tsetse country; for those poor isolated district officers and game rangers who live where the tsetse is dreadful; and for those who travel in the fly-infested areas."

How the Jersey-made mosquito killer was used in distant Africa was described in part by Mrs. Morse as follows:

"We spray the interior of the tent with a small hand sprayer of the usual house type, and nothing enters. Or rather, the tsetse make a tentative fly-in and then, deciding it is no place for them, out they go. This one spraying will protect the interior of the tent for at least half a day.

"We spray the mess tent, which is open on all sides, and this has to be done about once an hour or twice during a meal to be satisfactory. We spray our faces, stockings, and exposed parts—and have perfect comfort."

Science News Letter, April 9, 1938

GENERAL SCIENCE

Science Service Writer Wins Harvard Scholarship

WESLEY FULLER, reporter on the Boston Herald and Boston correspondent for Science Service, was among the nine journalists who won the Nieman Fellowships of Harvard University.

The fellowships, initially established this year, are for working journalists who wish to take additional college training to fit themselves better for their careers.

While all other fellows elected to take courses in political science, social science and history, Mr. Fuller chose to study in the physical sciences. He intends to pursue his activities as a reporter specializing in popularizing science in the press.

The fellowships were established under the terms of the Lucius W. Nieman and Agnes Wahl Nieman Fund of approximately \$1,000,000. Mr. Nieman was the founder and publisher of the Milwaukee Journal. The fund was set up by his widow's will.

The Nieman fellows cannot engage in newspaper work during the year they have the fellowship and the courses they take cannot be counted toward graduate degrees. The purpose of the fellowships is to "promote and elevate the standards of journalism in the United States and educate persons deemed specially qualified for journalism."

Science News Letter, April 9, 1938

IN SCIENCE

PLANT PATHOLOGY

New Discoveries Delay Elm Disease Campaign

SCIENTISTS' warfare against the Dutch elm disease has been made more difficult, and the eradication of the plague probably delayed, by three new discoveries:

1. The fungus that causes elm disease may remain dormant in some trees, not causing immediate appearance of the wilting, drying branches by which the malady is now diagnosed.
2. Such infected but not dying trees may never become distribution foci of the epidemic, unless broken limbs should bring the infection to the surface.
3. The fungus can live and grow in trees after they have died.

Scouts who have had ready means for recognizing the disease now know that apparently healthy trees may still be harboring it. Hence checking of any suspected areas must be repeated again and again, probably for years.

Removal of elms that are sickly, deformed, or otherwise of low value is now sought, even though the trees may now have elm disease. Such low-value elms offer ready harborage and food for the elm bark beetles that carry the disease fungus.

Science News Letter, April 9, 1938

PHOTOGRAPHY

Tiny Photoflash Lamp Available to Photographers

A PHOTOFLASH lamp so small that 18 of them can be carried in a man's coat pocket is now available to America's host of photographers.

Designed for exceptionally economical use—a special filament burns out before the metal foil burns, thus saving current—the new vest pocket bulb is adapted for use with miniature cameras, the Westinghouse Electric and Manufacturing Company, its maker, declares. It burns with a longer flash than prevailing types, thus making synchronization with the camera's shutter easier.

Science News Letter, April 9, 1938

CE FIELDS

ASTRONOMY

Million-Mile Prominence Rises From Sun's Surface

RISING a million miles from the surface of the sun, the highest solar prominence ever recorded was observed by Mt. Wilson Observatory scientists on March 20, the Carnegie Institution of Washington has announced.

Reports of measurements made by Dr. Edison Pettit on photographs of the prominence indicate that a gigantic mass of erupting calcium and hydrogen gas rose nearly vertically from the sun that morning at speeds first of 40 miles per second, then 80 miles per second, and when last noted, 124 miles per second. Photographs of this eruption were taken by J. O. Hickox.

When last observed the solar prominence had risen to 970,000 miles above the surface of the sun and was still rising. Clouds interfered with further observations. The greatest height hitherto observed for a prominence is 621,000 miles, recorded at the McMath-Hulbert Observatory at Lake Angelus, Mich., on Sept. 17, 1937.

The prominence rose from a point near the sun's north pole and during the earlier stages of its development sent streamers of luminous gas back to a center of attraction about five degrees from the pole.

Science News Letter, April 9, 1938

PALEONTOLOGY

Ground Sloth May Have Been Living in 3400 B. C.

SOUTH America's extinct bear-sized ground sloth, contemporary with the American horse, may have died out only about 5400 years ago, according to evidence collected by Junius Bird, American Museum of Natural History anthropologist (*Geographical Review*, April).

Using small sailboats, outmoded motor-cars and even an ox-cart, Mr. Bird, accompanied by his wife, who is also an experienced field worker, has made a number of trips into the little-known and sparsely-inhabited country near the Straits of Magellan. His carefully-collected evidence, added to the work of

many other researchers, is being used to bring the problem of the antiquity of man in America nearer to a solution.

Five periods of habitation, uncovered in caves in southern South America, give evidence of five distinct cultures, the first a group of horse-hunting, sloth-eating primitives, the most recent a group of hunters who used arrow heads similar to those used by the not-distant Ona tribe.

Basing his age estimates on the rate of accumulation of dust in the caves Mr. Bird finds that the end of the sloth-eating culture, perhaps caused by the extinction of the sloth, and perhaps by other, possibly climatic, factors, which also caused the extinction of the sloth, occurred between 5400 and 3000 years ago.

Exact dating, says Mr. Bird, is not possible, but evidence of a rise of more than 40 feet in land levels since man first came to southern South America, and evidence that this rise did not occur all at one time, but with some regularity, attests to a considerable time lapse between the first settlement of the continent and the present.

Science News Letter, April 9, 1938

PUBLIC HEALTH

College Students Need Smallpox Vaccinations

THE STORY of man's conquest of disease never fails to thrill the reader. He closes the book with gratitude to the scientists who helped make life safer and more comfortable for him and with pride in their achievements. Then he forgets all about it.

The average young man or woman who has entered college can hardly have failed to learn about Jenner's discovery of smallpox vaccination. At least he knows that the Father of His Country, George Washington himself, was badly disfigured by the disease. Yet, more than 80,000—75 out of every 1,000—college students in the United States today need vaccination for smallpox.

This estimate was made by Drs. R. C. Bull and S. L. Rankin of Lehigh University. A threat of smallpox at the university gave them the opportunity recently to investigate the immunity or resistance to smallpox in college students. Their estimate for the entire country is based on the proportion of Lehigh students found in need of vaccination and probably gives a fair picture of the situation, since students come there from nearly all parts of the country.

Science News Letter, April 9, 1938

GEOGRAPHY

Colonies Don't Pay, Says Noted English Geographer

COLONIES don't pay, declares Dr. C. B. Fawcett, professor of economic and regional geography in the University of London (*Geographical Review*, April). Colonies are valued principally for their prestige value, in upholding the national self-esteem of the power that owns them, the English geographer indicates. Such imperialistic "front" is of course an expensive luxury.

Even Great Britain, with the world's most far-flung colonial empire, has to import wheat for the homeland's daily bread. British colonies supply British needs in only three foodstuffs, tea, cocoa, and cane sugar—semi-luxuries, all of them. A few great British fortunes have been made in the colonies, and a fairish number of young men find satisfactory careers as colonial administrators—but more money has been sunk in unrecorded losses than has been won in conspicuous gains; and the British home taxpayer has to foot the bills for administrative costs.

Neither will colonies give any real relief, through emigration, to over-population at home, Prof. Fawcett contends. Most colonial lands are in the tropics, and white men from the temperate zones simply will not go there.

Science News Letter, April 9, 1938

AVIATION

New Plane for USSR Lands On Earth, Snow, Water or Ice

WITH FLIGHT tests completed, the world's first military airplane capable of landing or taking off from land, snow, ice or water is ready for delivery to its purchaser, the Soviet government.

Sale of the new type Seversky Amphibian Fighter, developed to meet special conditions imposed by Russia's tremendous expanse and huge undeveloped areas, to the Russian government has been announced by the Seversky Aircraft Corporation. It is the world's fastest amphibian fighter.

Capable of flying at 300 miles an hour with its easily removable pontoons taken off, the new amphibian has retractable wheels built into its pontoons and skids on the bottom to enable it to make use of any type of landing facilities available. Fuel tanks in its wings give the plane a maximum range of 6,000 miles with full military load.

Science News Letter, April 9, 1938



A SAVAGE STRIKES BACK

When a benighted savage turns to caricature, he wields a deadly weapon. Here is the haughty wife of a colonial official as a Madagascar native saw her: Done in wood, the lady wears skimpy white dress, high-heeled red shoes, purple parasol, sun helmet, and a dirty look. She is on exhibition now in Chicago's Field Museum.

GEOLOGY

Vast Underground Workings Supply Limestone for Steel

See Front Cover

LIMESTONE, necessary in the smelting of iron ore, must be mined just as is the iron and coal used in steel manufacture, now that surface workings have been exhausted. How the "hard rock men" who blast out the limestone work is shown in the photograph on the front cover of this week's SCIENCE NEWS LETTER. Two men are here shown, dwarfed by the great masses of limestone overhead, drilling in a back stope of the Muscoda Limestone Mine, near Birmingham, Ala. This mine produces 130 tons of limestone per hour during busy seasons, all of which is shipped for use in the nearby smelters.

Science News Letter, April 9, 1938

Important gland secretions that exist in the human body in quantities as tiny as one-millionth of a per cent. can be analyzed chemically by new methods.

ETHNOLOGY

Liberia Natives Lose Respect For Europeans

WHEN Miss Etta Donner, a young Viennese girl, came home from her first expedition into the primeval forest of Liberia and was asked whether she had not been afraid to live all alone among savages, she said:

"Oh no! White people are very much respected where they are not known."

Now, returning from her second expedition, she says:

"White people are no longer so much respected. Several journalists who had been received with great hospitality by the natives wrote odious things about them—thinking these poor illiterate fellows would never know. Yet they did know; for however primitive these people may be, they are subjects of the Republic of Liberia, which has consulates in many countries."

Taxes Promote Sales

The "savages," the Dan and Kran peoples, have to pay to their government one Liberian dollar a year for every hut. As they are not fond of working they gladly earn taxes by selling Miss Donner masks and other handicraft articles, some of them having high artistic value.

It is not difficult to get these things, Miss Donner says, when one knows what they have. The difficulty is to guess what they have, for the natives answer only what they are asked.

Miss Donner, pupil of the Vienna African Institute, knows the Mano language, yet direct speech is no more good etiquette than direct handing of a gift. The ceremonial etiquette requires every formal conversation to go through the mouth of an interpreter, and every present through the hands of at least one servant. Social precedence is strict. Hence the natives march in single file. Miss Donner could not induce her boy to walk at her side. She was compelled to twist her neck when she wanted to talk to him while walking.

Emblems of the highest social rank, Miss Donner says, are the two enormous metal rings into which the feet of the chieftain's wife are riveted on the day of her marriage, so that she can hardly creep along. The rings are at last removed, after her death; because nothing

binding, no tie whatsoever, should be taken into the other world.

In the life of Dan and Kran peoples of East Liberia dancing is important. Dancing women announce the birth of a child. When somebody dies, singing women dance through the village to expel the spirit of death.

Preferably they dance in the silvery shine of the moon on the village square, but to welcome Miss Donner, they also danced in bright sunlight—a procession of dark female bodies carrying their babies on their backs and in their hands green branches as signs of peace.

At the festival of Youth Initiation sometimes the incredibly skilled stilt-dancers appear—called "long devils" by the Dan negroes.

Other masked dancers are "bush-devils" performing at special functions. If the clan chief cannot settle a conflict, he calls in a bush devil of high rank against whose verdict there is no appeal. Women are not permitted to see him and must retire into their cabins for the time of his stay. This office is a privilege of a few families whose names are not known.

A Demon for Cleanliness

A minor devil cares for order and cleanliness of the streets. He runs about with two sticks in his hands and beats people who get into his way. If he finds cow dung or other dirt in the street, he throws it at the faces of the villagers. Nobody dares oppose his tyranny.

With the Kran people Miss Donner met a masked dancer who imposed disagreeable things on the inhabitants. One man, for example, who boasted and bet too much was commanded to drink a whole bucket of water. A glutton was ordered to eat an enormous dish of rice. If such an unfortunate victim cannot fully accomplish his task, he is laughed at by the whole village and thrashed pitilessly by the devil.

The playful spirit of the natives needs masking and dancing not only for pleasure, Miss Donner finds, but also for carrying out educational and cultural duties.

Science News Letter, April 9, 1938

MEDICINE

Cured Patients Form New Societies to Combat Fear

Recovery From Cancer and Mental Disease Requisites For Membership in New York and Illinois Bodies

CURED patients of two of the most dreaded—and hushed-over—types of human maladies, cancer and mental disease, have recently formed associations to dispel the fog of half-superstitious fear that hovers over discussion of these ills, and to aid in the fight against them.

The Cured Cancer Club was organized in New York by the American Society for the Control of Cancer. Dr. Anna C. Palmer, 81-year-old physician of Milton, Mass., who was cured of cancer of the breast in 1920, is the first president of the new club. It is hoped that the tens of thousands of cured cancer patients throughout the country will join the club, so that the general fear of cancer will be replaced by a calm and alert attitude which will lead tens of thousands more to early diagnosis and cure.

Cured mental patients in Illinois are forming an association to change the public attitude in regard to mental disease. Members of the society will consist, at first, of the patients who have been discharged as recovered from the Psychiatric Institute of the University of Illinois.

Dr. Major H. Worthington, managing officer of the Illinois Research and Educational Hospitals of the University of Illinois and the State Department of Public Welfare, announced the organization a short time ago. Its aims, he said, will be:

1. To help physicians of the Institute to study the subsequent adjustment of the discharged patients.

2. To engage in an educational campaign for the purpose of changing the attitude of the community toward mental disease.

3. To promote the economic interests of the former patients.

Name for the organization will be "The Association of Former Patients of the Psychiatric Institute of the University of Illinois." Among its activities will be an employment agency for former mental patients, now recovered and restored to society.

It is hoped that the movement will become statewide in scope and soon include patients who have been discharged by other State hospitals.

Science News Letter, April 9, 1938

Dental plates were first patented in the United States in 1840.

BOTANY

Spiral Twisting Apparently Natural for Many Plants

IT SEEMS to be natural for many plants to twist as they grow, forming spiral patterns. At the University of Wisconsin, James L. Roberts has been observing the phenomenon in one of the so-called higher bacteria, which grows in long, slender threads. So strongly do the filaments rotate as they grow that they even twist themselves into loops. (*Science*, Mar. 18)

Science News Letter, April 9, 1938

RADIO

April 14, 4:00 p. m., E.S.T.

LOST ARTS OF THE STONE AGE—Dr. H. C. Shetrone, Director of the Ohio State Museum.

April 21, 4:00 p. m., E.S.T.

ANTARCTIC DISCOVERIES—Prof. W. H. Hobbs, geologist of the University of Michigan.

In the Science Service series of radio discussions led by Watson Davis, Director, over the Columbia Broadcasting System.

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DOUBLE SEPULTURE

Sealed adobe tubes in which Hohokam Indians placed the urns in which they deposited the remains of their dead.

ARCHAEOLOGY

"Thermos Bottle" Burials Found in Arizona Ruins

INDIANS in the Southwest over a thousand years ago didn't have thermos bottles, but they invented a burial fashion that looks curiously like one.

Discovery of this heretofore unknown type of Indian burial, consisting of a bottle within a tube, is reported by Carl F. Miller, Tucson archaeologist.

Mr. Miller was digging at ruins of a settlement near here, where Hohokam Indians once lived in pit dwellings, when he discovered queer looking tubes of adobe. Inside the tubes he found urns or bowls of pottery. And inside the urns were bones of cremated Indians.

When the Indians had deposited the urn in the adobe tube, they sealed it with an adobe stopper, making a solid column.

Mr. Miller was impressed by the excellence of the pottery, most of it being well shaped and undecorated.

Science News Letter, April 9, 1938

CLIMATOLOGY

Long Range Forecasts Called Future Possibility

Astronomer Traces Connection Between Sunspots And Events in Earth's Atmosphere Up to 100 Miles

SCIENTISTS are hopeful that it will not be long before it will be possible to predict—a year or more in advance—the coming of hot and cold seasons or wet and dry periods.

Delivering the seventh James Arthur Lecture at the U. S. National Museum, Dr. Harlan T. Stetson, astronomer and research associate of Massachusetts Institute of Technology, said:

"That weather changes accompany changes in solar radiation has been frequently shown through the long series of observations made at the Smithsonian Institution. Enough has been done already to hold out hope that with a more thorough understanding of the solar cycle and the absorption of solar radiation taking place in the earth's atmosphere, it will not be long before predictions of hot and cold seasons, wet and dry periods, may be made a year or more in advance with a more creditable score of hits than can be done at present. All this emphasizes the importance of predicting sunspots.

"Present indications are that sunspot numbers are now near the top of the so-called 11-year cycle," said Dr. Stetson. "Last July they reached an all-time high, hitting the highest value on record since 1870 but the sun had some surprises in store. During what was supposed to be a minor reaction in August, sunspot numbers went tumbling and continued the toboggan until into

December. For a week or two inactivity was the rule. With the beginning of the year sunspots began to break out again with increasing numbers and by the middle of February had recovered two-thirds of their losses since last July. Whether or not the present surge upward will continue to increase to early spring and out-top the July 1937 high remains to be seen.

"If such is the case, it will appear that the spring maximum will be the high spot of the present movement, after which with recessions and minor elevations, the curve will continue to decline for the next five or six years."

Increased Disturbance

The great rise in the number of sunspots during the last year has had much to do with the observed disturbances in the earth's atmosphere and with some of the unusual displays of aurora which have been noted very recently, Dr. Stetson indicated.

Simultaneously with the appearance of sunspots, which are huge storms raging on the sun, there have been violent electrical disturbances affecting the reception of radio signals at the experimental radio station of Dr. Stetson.

The violent sunspot storms change the amount of ultraviolet radiation received on the earth, Dr. Stetson also indicated. These rays produce the layer of ozone known to exist at heights of ten miles and more above the surface of the earth. The rays ionize the oxygen atoms present and form the ozone molecule O_3 . It is the ozone layer which blocks off part of the ultraviolet rays and permits only those beneficial to health to penetrate to the earth's surface.

The energy absorbed by the ozone layer raises the temperature of the upper stratosphere and is the factor probably responsible for the creation of the radio reflecting layers high above the earth. Investigations now under way are seeking the daily values of the amount of ozone in the atmosphere on a world-wide scale.

Science News Letter, April 9, 1938

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From Page 229

pituitary hormone that stimulates ovulation. This is the process by which the egg is released for fertilization. If pituitary failure is the cause of sterility, it might be possible to remedy it by treatment with the appropriate pituitary hormone.

A sulfur compound which made it possible for four mothers to nurse their babies, although they had been unable to do so for previous babies, was reported by Dr. Ray G. Daggs of the University of Vermont.

Mother's milk is the very best food for new babies, baby specialists agree. No substitute is entirely satisfactory, although many have been tried. Many modern mothers, however, are not just unwilling but actually unable to nurse their babies. These facts explain why Dr. Daggs' discovery of a substance that induces milk secretion in the mother is considered important.

The substance is cystine, the chief sulfur-containing compound of the protein molecule. It is one of the amino acids which are building stones for protein molecules and as such is an essential constituent of the diet.

Discovery that cystine is a stimulant to milk production was made on rats but the cases of the four mothers reported here today show its value for humans as well.

Clue to Intersexes

A clue to those queer causes of mixed sex in which one person seems to be part masculine and part feminine appears in research reported by Drs. R. R. Greene and M. W. Burrill of Northwestern University Medical School. There is even a hint of the possibility of producing boy babies at will, since that, in effect, is what occurred during this research on rats.

An excess of male sex hormones in the mother's body during the months before her child is born is the explanation for cases of mixed sex, if the Northwestern University scientists' findings on rats prove true for humans.

When large amounts of male sex hormones are given to pregnant rats, the offspring which would normally have been females are "permanently masculinized," Drs. Greene and Burrill reported. The degree of masculinization seems to depend on the amount of male hormones given and the length of time before birth of the offspring when treatment is started.

This treatment has produced 76 "very definitely intersexed rats." Examination

of these animals showed that though they started out to be females, their sex glands became definitely masculine.

If insulin, diabetes remedy, just were less expensive and could be taken by mouth, it would be a fine remedy or preventive for hang-overs. This appears from research reported by Drs. B. B. Clark and R. W. Morrissey of Albany, N. Y., Medical College.

Insulin, they found, increases the rate at which ethyl alcohol disappears from the blood of dogs by from 20 to 50 milligrams per cent. in 2 to 4 hours. Alkalizing salts, such as sodium bicarbonate and sodium citrate, and glucose (sugar) have no effect on the rate at which alcohol disappears from the blood. (Blow to those who use alkaline hang-over remedies and those who pin their faith on a bed-time meal after a spree.)

Alcohol Oxidation Speeded

The combination of insulin, glucose, and an alkalizing salt such as sodium bicarbonate, however, "produced the greatest decrease in blood alcohol, averaging 38 milligrams per cent.," the scientists reported. The animals given this combination "were in better condition" during the investigation and "appeared to recover completely sooner than those in other groups."

The burning of ethyl alcohol in the body, with its consequent disappearance, proceeds at a constant rate, the Albany scientists pointed out. It has been practically impossible to alter this rate by treatment. The reason why insulin speeds up the disappearance of alcohol from the blood is, they suggest, that insulin speeds the rate at which sugar and starch are burned and this acts like a catalyst or stimulant to the burning of alcohol.

A new chemical remedy for burns which may prove superior to the now widely used tannic acid treatment was reported by Drs. K. K. Jones, R. W. Vance and Quin De Marsh of North-

western University Medical School.

The chemical is sodium hexametaphosphate. A solution of it prevents infection of burns and other tissue that has lost its skin because of injury. This chemical combines with the fluid oozing from the skinned tissues to form a film that is moist, firm, flexible and that prevents the growth of bacteria or disease germs. Islets of living skin in the midst of the burned area are not injured by the chemical.

Underneath this film new, normal-appearing skin grows. Under the new skin is a layer of tissue full of blood vessels which the Northwestern scientists say is quite different from the undernourished tissue that regenerates when tannic acid treatment for burns is used.

Science News Letter, April 9, 1938

ENTOMOLOGY

Grasshopper Eggs Are Ready to Hatch Trouble

FARMERS' troubles in the West this summer are going to be little ones—billions of 'em. Most recent field surveys by Department of Agriculture workers indicate that the heavy stocks of grasshopper and Mormon cricket eggs in the soil have come through the winter in fine shape. Now they are getting ready to hatch into hungry mischief.

Science News Letter, April 9, 1938



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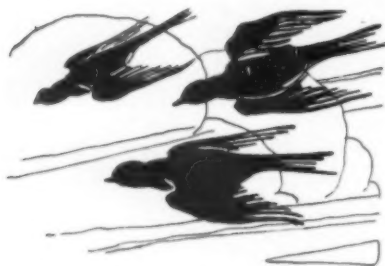
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Bird Flyways

BIRDS flying northward, as heralds before the face of the returning spring-time sun, follow paths as definite as those laid out for pilots of transcontinental planes. These can be traced by noting numbers on leg-bands of captured birds and then releasing them again, and also in a more general way by observers stationed at strategic points along the "flyways."

North America has four major flyways, with of course a number of feeders and branches. The four great paths follow Atlantic and Pacific coastlines, and in the interior, one along the east flank of the Rockies, over the Plains, and one down the great central valley with the Mississippi as a guideline.

Europe likewise has well-established flyways. Two of them cross Switzerland. One, originating in Russia, skirts the Baltic countries, Poland, and Germany, and thence into northwestern Switzerland. The second comes from Finland and northern Scandinavia. At the Rhine delta it divides. One branch toward the south goes via the coast of France and the Iberian peninsula. The other swings inland along the Rhine and eventually reaches northwestern Switzerland.

Unlike our North American birds, the birds of Europe that follow these inland routes have mountain barriers to climb. Passes become as important to them as to land animals—or even to airplanes. Thus it has come to pass that Switzerland is a strategic center for the study of migrating birds, and also that Swiss refuges possess high importance for the conservation of European bird life. In view of the ominous clouds now hanging over all Europe, it is perhaps well for the birds that this is so.

Science News Letter, April 9, 1938

ECOLOGY

Domestic Animals Run Wild Ruin Vegetation and Soil

HAWAII seems to have been a paradise that escaped the trampling hoofs and devouring mouths of the Age of Mammals almost entirely until the coming of that most troublesome of all mammals—Man. To introductions and changes wrought by human agency are traceable most of the damage and destruction to the unique vegetation of the islands.

Some of these disturbances were described before the North American Wildlife Conference at its Baltimore meeting recently by Samuel H. Lamb, assistant park naturalist of Hawaii National Park. Although Mr. Lamb confined his discussion to problems within the national park boundaries, he stated that in many ways these are typical of conditions for the countryside at large.

The only mammal that seems to have found its own way to Hawaii unaided by man is the bat. The original brown-skinned immigrants brought dogs and perhaps pigs, and they may have carried rats and mice as stowaways. Other students of the problem believe that the pigs, rats and mice date from a supposed visit by the Spaniards in the sixteenth century. Goats were brought by Vancouver in 1794, and other livestock came later.

Feral Goats and Pigs

Of them all, most destructive to Hawaiian native vegetation are goats and pigs, escaped from domestication and now living as wild animals in the rough, wild interior, in part thickly forested, in part grassland and semi-desert lava fields. Goats are notorious everywhere as destructive feeders. Pigs are even worse, for they root underground, devouring bulbs and rootstocks, and breaking the ground cover to give alien grasses and weeds a chance to gain foothold.

Efforts to save at least part of the native vegetation include goat-tight fences around selected areas, followed by concerted drives to eliminate the feral animals within them. In broken lands where fencing cannot be carried out, the only thing that appears practicable is to permit and even encourage wholesale shooting of the goats and pigs.

In Hawaii, domestic animals that have run wild have made much mis-

chief in short time. Longer time has permitted more harm in a region where man has lived—and kept goats—since the dawn of civilization.

The goat, irrepressible, omnivorous, cropping every living shoot level with the bare soil, is pointed out as the "goat" of the age-old soil-erosion problem of southern Italy, Greece, and other Mediterranean countries by Sir Daniel Hall, director of the John Innes Horticultural Institution, in England.

First, the forests were stripped from the hills, and no provision made for their replacement. Then came the pressure to extend the limits of grazing.

"Grazing is all very well if regulated," said Sir Daniel, "but unfortunately in these Mediterranean countries goats are among the chief grazing animals."

Goat is Chief Sinner

"It is no accident that old tradition has represented the Evil One with the hooves of a goat, for of all animals the goat plays the devil with land. Hungry goats will eat anything that grows; they destroy every seedling tree as fast as it gets its head up; they complete and extend the destruction the wood-cutters have begun."

Then comes the cycle all too familiar to Americans who have seen over-grazed land: the animals' sharp hooves cut the surface of the soil; they beat down hard little paths, invitations to runnels of water when the rains come. These become first little gullies, then great gashes, and presently the slope is slashed into badlands.

"Such has been the history of much of the fairest land on the seaboard of the Levant," mourned Sir Daniel. "On the heights bare rock where once forest and meadow flourished, rivers that are torrents in winter and dry in summer, old seaports no longer accessible."

"The destruction of the forest was thus a major factor in the decay of Greece and Rome itself; it meant in the first place the loss of farming land and of the agricultural population which formed the backbone of the early armies of the republic."

Science News Letter, April 9, 1938

A warthog always enters his home backwards.

CAN YOU ANSWER THESE QUESTIONS?

About Coffee

1. Does "dating" guarantee good coffee?
2. How do the famous Maxwell House and Chase & Sanborn brands compare in quality with lesser known and cheaper brands?
3. What method of preparing coffee will give the most satisfactory brew?
4. What do medical investigators say about the effects of drinking coffee?
5. Which 11 brands of coffee were considered to be poor in quality by expert coffee tasters? Which 12 brands were considered good? Which one brand was considered excellent?

About Razor Blades

6. What 5 brands were rated "Best Buys" after an eight-month shaving test on 22 brands?

7. What 1 1/4 c blade was considered a better buy than three, four and five cent blades?

About Hair Removers

8. What is the surest way to remove hair permanently?
9. Are Neet, DeWans, Zip, Del-A-Tone, and X-Bazin safe and effective depilatories?

About Autos

10. Of the three low-priced cars, Ford, Chevrolet and Plymouth, which one averaged 28.85 miles per gallon of gas, which 21.99 miles per gallon, and which 21.25 miles per gallon in a test run of 314.5 miles?
11. In what order of merit did automotive experts list seven high-priced 1938 cars, including

the Packard, Cadillac and Chrysler?

About Insurance

12. Why is it hazardous to include savings with life insurance, as most policies do?
13. What kind of insurance should a person whose future income is uncertain buy?

About Other Products

14. What 2 brands of women's shorts were rated "Best Buys" after a test of 40 brands?
15. What well known brands of canned corn scored highest in tests run by official government graders on 72 brands?
16. In buying or building a home what preliminary steps are essential before making your first payment?

CONSUMERS UNION REPORTS GIVES YOU THE ANSWERS

Consumers Union Reports for March gives you the answers to the above questions; but *Consumers Union Reports* do more than just increase your stock of information. Knowledge of the answers to questions 3 and 5, for example, can definitely increase your enjoyment of coffee drinking. Knowledge of the answers to question 6 can make your shaving less of an ordeal. Knowledge of the answers to other questions can result in definite savings in your buying.

The March issue of *Consumers Union Reports*, the monthly publication of Consumers Union of United States, rates thirty-six brands of coffee on the basis of cup tests. Four special types of coffee, including the decaffeinated coffees, are also discussed and methods of brewing are compared. Tentative ratings, by name, as "Best Buys," "Also Acceptable," and "Not Acceptable" are given of 22 brands of double-edge razor blades, based on an eight-month shaving test and on machine tests for sharpness. Forty brands of women's shorts, ranging in price from 25c to \$1.50 are reported on and rated. Ratings are given of 72 brands of canned corn. Three new-type vacuum cleaners are reported on. Sixteen models of mechanical pencils are also rated. Nineteen types of hair removers, discussed in a report which finds that serious hazards attend most methods of removing hair, are all named and rated.

In a supplement to the previous month's survey on 1938 autos, seven higher-priced models are listed in order of merit and a table is given, showing the average mileage per gallon of gas of 26 cars as determined by the annual Gilmore-Yosemite Economy Run.

CHARTING A COURSE FOR THE HOME BUILDER

The series of reports on life insurance and home building are also continued. The current article on insurance deals with the compulsory savings program which most insurance policies include. The report on home building charts a course for the prospective home buyer or builder through the maze of preliminary but highly important steps preceding the actual construction of a home.

This unusually interesting and valuable issue of the *Reports* may be had by cutting out and mailing the coupon below. In case you want the previous reports in the series on insurance or home building, we are listing the *Reports* in which they appeared (together with a partial list of the other subjects covered in them). You may start your year's subscription with any of these issues. Simply write the name of the month you wish to begin with in the coupon.

- NOV.—Life Insurance, Portable Typewriters, Anti-Freezes, Men's Hats.
 DEC.—Life Insurance, Radios, Toys, Electric Shavers, Cigars, Lipsticks.
 JAN.—Life insurance, Home Building, Auto Batteries, Vitamins, Lisle Stockings.
 FEB.—Ratings of 1938 Autos, Life Insurance, Home Building, Vitamins.

Consumers Union Reports—which goes to 60,000 Consumers Union members throughout the country—will show you how to buy intelligently and how to make substantial cash savings on your purchases. Become one of the thousands of American consumers who are taking part in this organized effort to get the best values for their money. Cut out and mail the membership coupon today!

CONSUMERS UNION of U. S., Inc.

Ready Early in April!

Consumers Union's 1938 Buying Guide—which is included in the regular \$3 membership fee of Consumers Union WITHOUT EXTRA CHARGE—is now going to press and will be ready for distribution early in April. This 288-page, pocket-size book will rate over 1500 products by name as "Best Buys," "Also Acceptable," and "Not Acceptable" on the basis of actual laboratory or use tests conducted by expert, unbiased technicians. This Buying Guide is not sold separately and can be obtained only through membership in Consumers Union—which also brings you twelve monthly issues of *Consumers Union Reports*. Make sure of your copy by becoming a member today.

TO CONSUMERS UNION OF U. S. 55 Vandam St., New York, N. Y.

Send me **CONSUMERS UNION REPORTS** for one year (12 issues) starting with the..... issue. I enclose \$3 for membership, \$2.50 of which is for subscription. I understand that this fee also entitles me to the 1938 Buying Guide which will appear in April. I agree to keep confidential all material sent to me which is so designated.

Name

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City Occupation L-3

• First Glances at New Books

Documentation

THE JOURNAL OF DOCUMENTARY REPRODUCTION, V. 1, No. 1—*American Library Assn.*, quarterly, \$1 single issue, \$3 year. The relatively new field of applying modern methods of reproduction, particularly the microfilming, to the intellectual world now has this journal of its own. It is a quarterly review of the application of photography and allied techniques to library, museum and archival service.

Science News Letter, April 9, 1938

Bibliography

BOOKLIST BOOKS, 1937—*American Library Assn.*, 61 p., 75 c. Compiled annually by the Booklist staff with the aid of a large group of librarians, this classified list of nearly three hundred books is perhaps more useful to the reading public than any other available publication of its kind. Not one, but a large number of librarians have handled and examined the books before recommending them.

Science News Letter, April 9, 1938

Education

THE PROBLEMS OF EDUCATION—Claude C. Crawford, Louis P. Thorpe and Fay Adams—*Southern California School Book Depository*, 239 p., \$2.50. A text for an orientation course for education of students by members of the faculty of the University of Southern California.

Science News Letter, April 9, 1938

Aeronautics

HISTORY OF AERONAUTICS: A SELECTED LIST OF REFERENCES TO MATERIAL IN THE NEW YORK PUBLIC LIBRARY—William B. Gamble, Compiler—*New York Public Library*, 325 p., \$2. An annotated bibliography of the material on aeronautics history in the New York Public Library, by the chief of the science and technology division. Well arranged and indexed.

Science News Letter, April 9, 1938

Medicine

INTRODUCTION AND GUIDE TO THE STUDY OF HISTOLOGY FOR STUDENTS IN MEDICAL SCHOOLS AND COLLEGES—Avery E. Lambert—*Blakiston's*, 542 p., illus., \$5.

Science News Letter, April 9, 1938

Juvenile Fiction

MESSANGER TO THE PHARAOH—De Wolfe Morgan—*Longmans*, 312 p., \$2. An absorbing adventure story, with the great pyramid for its scenes of crisis, and Pharaoh Khufu himself and his

mysterious rival providing the excitement of the plot. The writer, incidentally, achieves a difficult thing: writing about an ancient civilization without dragging the story down with descriptive facts.

Science News Letter, April 9, 1938

Geography

THE SOUTH AMERICAN HANDBOOK, 1938 (15th ed.)—Howell Davies, ed.—*Wilson*, 758 p., \$1. Facts for the traveler, or the information-hunter in the library. This small but thick guidebook tells everything, from the postal rates and railroad routes, to descriptions of important places and information about sightseeing tours. It includes Mexico, Cuba, and Central America, too.

Science News Letter, April 9, 1938

History

THE HISTORICAL CHART OF MANKIND, FROM 4000 B. C. TO NOW—*United Educators; Distributed by C. S. Hammond & Co.*, \$1. One of those fascinating charts that unfold by the yard and show how the world has progressed with its conquests, and other notable changes. Colors are used as keys, so that the stories of empires, arts, sciences, and discoveries can be traced easily.

Science News Letter, April 9, 1938

Hygiene

FATHER'S DOING NICELY: THE EXPECTANT FATHER'S HANDBOOK—David Victor—*Bobbs-Merrill*, 170 p., \$1.50. Beneath a gay and flippant style, this book has much sound information and advice that will make life easier and better not only for expectant fathers and mothers but for the child when he comes along. Dr. George W. Kosmak, editor of the *American Journal of Obstetrics and Gynecology*, has written a foreword.

Science News Letter, April 9, 1938

Public Health

CIVILIZATION AND DISEASE—C. P. Donison—*William Wood*, 222 p., \$3. The contrast between the diseases of primitive people and those in civilized countries seen at first hand by the author led him to consideration of the effects of civilization on disease. His conclusions, presented here with the reasons for them, seem to be that so-called diseases of civilization are by-products of a process of adaptation which has not yet been perfected. The cheerful view that these diseases can be controlled in future is also expressed.

Science News Letter, April 9, 1938

Biology

THE HUMAN VALUE OF BIOLOGY—Johan Hjort—*Harvard Univ. Press*, 241 p., \$2.50. Those who spend their lives at grips with the sea are apt to become highly realistic and practical in their philosophy. Johan Hjort is no exception: he shows that he can think in a straight line as surely as he could hold a boat to her course; but his thinking always wants to come out somewhere in positive action for the benefit of humankind.

Science News Letter, April 9, 1938

Ornithology

THE BLUE-WINGED TEAL, ITS ECOLOGY AND MANAGEMENT—Logan J. Bennett—*Collegiate Press*, 144 p., illus., \$1.50. The complete natural history of one of our more important game birds. The study centers in Iowa, but extends into Canada on the north and Mexico on the south. It would be an excellent thing if each one of our major wildlife species could be monographed in this fashion.

Science News Letter, April 9, 1938

Botany

THE STRUCTURE AND DEVELOPMENT OF THE FUNGI (2d ed.)—H. C. I. Gwynne-Vaughan and B. Barnes—*Cambridge (Macmillan)*, 449 p., illus., \$5.50. The necessity for a new printing has given opportunity for revising and bringing up to date a book valuable for use either as text or reference work.

Science News Letter, April 9, 1938

Biology

HIGH SCHOOL BIOLOGY—Ralph C. Benedict, Warren W. Knox and George K. Stone—*Macmillan*, 724 p., illus., \$2. Rather bulkier than most high school texts, this book offers the teacher opportunity to select material best suited for his classes.

Science News Letter, April 9, 1938

Animals

THE HOUNDS OF HASTING: THE WELFARE OF ANIMALS IN A SMALL TOWN—Marion Soetemon Krows—*Columbia Univ. Press*, 214 p., \$1.90. The story of the lone crusade against cruelty and neglect in the treatment of animals in a small town. Mrs. Krows sets forth the problem and the technique she used towards its solution forcefully and in considerable detail.

Science News Letter, April 9, 1938

Botany

A CONTRIBUTION TO THE FLORA OF HONDURAS—T. G. Yuncker—*Field Museum*, 120 p., plates, \$1.

Science News Letter, April 9, 1938